

# CASE STUDY

## HIPSS Cohort Study

The HIV Incidence Provincial Surveillance System (HIPSS) project is a 4 year cross sectional study, initiated in June 2014, with embedded cohort longitudinal follow-up which aims to measure HIV prevalence and monitor changes in HIV incidence over time, within a household population sample of men and women (approximately 20,000 participants) in the uMgungundlovu District, KwaZulu-Natal, South Africa. Research information on HIV as well as other diseases (TB, STIs), treatment indicators and behavioural/psychosocial characteristics are also collected.



### About HIPSS:

The HIV Incidence Provincial Surveillance System (HIPSS) is a joint endeavour between the KZN Department of Health, PEPFAR partners in KZN, CDC, NICD, CAPRISA, Epicentre AIDS Risk Management, Stellenbosch University's South African National Research Foundation Centre of Excellence in Epidemiological Modelling and Analysis unit (SACEMA) and Health Economics and HIV and AIDS Research Division (HEARD).

### Further Reading:

Access more Mobenzi case studies at <http://www.mobenzi.com/researcher/case-studies>

## MOBENZI IMPLEMENTATION

Mobenzi Researcher underpins the extensive mobile data collection requirements with Mobenzi Outreach supporting the custom workflows, longitudinal record-keeping and web interfaces. Mobenzi ID handles the mobile biometrics component whereby a standard fingerprint scanner is connected to the fieldworker's device to verify a participant's identity at each follow-up interaction.

There are two baseline cohorts of 10,000 participants (aged 15-49 years) and two embedded 12 month follow-up cohorts comprising a subset of 6,400 participants (participants of 15-35 years who are HIV negative). Prior to the start of each cohort, household lists are imported into the Mobenzi backend, and pushed to a web interface where field coordinators/supervisors are able to assign households to field teams (which are also configurable).

Each fieldworker receives household composition, baseline and participant contact forms for each household assigned to them. The Mobenzi mobile application guides the fieldworker through confirming eligibility and randomly selecting individuals who are available and willing to participate.

During the baseline assessment, if the participant consents, the fieldworker is automatically prompted to capture the participant's fingerprint using a peripheral scanner connected to the handset via USB.



The biometrics functionality is enabled by the Mobenzi ID plugin which extracts the participant's unique fingerprint template and stores it as part of the baseline assessment alongside the participant's other information.

At follow-up assessments, the fieldworker is able to verify the respondent's identity against the baseline template to ensure they are interviewing the correct respondent.

Along with the storage and matching of participant fingerprints, a server-side algorithm monitors new participant fingerprint enrolments and compares them against those already in the system to detect and notify data managers if any duplicate enrolments occur. These capabilities provide unprecedented tools to assure data integrity.

As part of the baseline interview, biological specimens are taken and labelled with a unique lab sample ID and an allocated QR code. These codes are scanned by the fieldworker using the Mobenzi software and stored as variables in the interview form, enabling the linking of research and lab data.

Lab results are routinely sent to the Mobenzi system which merges them with corresponding participant data. Once the lab results file has been processed, the system emails an output file back to the data manager, flagging any unsuccessful lab merges for investigation.

The study management team selects the participants who require follow-up and assigns them to field teams in the same manner as the baseline data collection phase. As soon as a 12m follow-up date is scheduled for an eligible participant, they receive an SMS to inform them of their inclusion.

The 12 month follow-up form is then generated by the system and loaded onto the fieldworker's device ahead of the relevant milestone and pre-populated to include the participant's fingerprint template for in-field verification as well as the location of their household.

During the follow-up interview, if the respondent's fingerprint matches the baseline template, the fieldworker may proceed with data collection. If not, the fieldworker is blocked from continuing until the participant's identity can be confirmed. In this way, the system guarantees that the correct participant is being interviewed.

The system automatically generates and distributes a weekly exception report which includes follow-up interviews, surveys where the GPS point recorded is more than 100m from the previous location and exceptions related to lab samples, ensuring ongoing accountability and data monitoring.

## IMPACT & OUTCOMES

Using the Mobenzi systems, field teams can be rapidly deployed and their activities streamlined. Web interfaces provide powerful data monitoring and quality control functions to ensure anomalies are picked up immediately for corrective action with the relevant field team.

Researchers can generate interim reports during the data collection process and these insights are used to immediately inform the field activities.

The integrated suite of Mobenzi tools provides a turn-key solution for data collection, fieldwork management, protocol automation and longitudinal record-keeping. These core functions are augmented by in-field participant verification, integration of lab results and real-time data analysis which improve operational efficiency and data integrity.

**Mobenzi**

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